

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 206851/JPR/SJB/sr		FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/IB 2002/000916	International filing date (day/month/year) 21.01.2002	Priority date (day/month/year) - - -	
International Patent Classification (IPC) or national classification and IPC G01S 1/24			
Applicant Nokia Corporation et al			

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:

- a. ☐ (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:
 - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

- b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

Date of submission of the demand 18.08.2003	Date of completion of this report 05.04.2004
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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/IB 2002/000916

Box No. I **Basis of the report**

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

- ☒ the international application as originally filed/furnished
- ☐ the description:
- pages _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ the claims:
- pages _____ as originally filed/furnished
- pages* _____ as amended (together with any statement) under Article 19
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ the drawings:
- pages _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/IB 2002/000916

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-17</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-17</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-17</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The claimed invention

The claimed invention relates to provision of information regarding location of a mobile user equipment and to compensation of inaccuracies in timing information used in determining the location of a mobile user equipment.

The following documents were cited in the International Search Report:

D1: US 6 188 354 B1
D2: US 6 249 253 B1
D3: US 5 945 944 A

D1 relates to a method and an apparatus for determining the location of a remote station in a CDMA communication network. D1 describes in column 2, lines 40-60, that the position of a remote station (mobile equipment) is determined using the time of arrival of a reference pilot signal as a time reference. The time difference of arrival (TDOA) of GPS signals and other signals received by the mobile equipment are measured relative to this reference time. From these measurements, the location of the mobile equipment is determined.

D2 relates to mobile telephone determination using time of arrival of GPS and pilot signals. D2 describes that each mobile station and each base station has a GPS signal receiver. The location of a mobile station comprises estimating the time of arrival of GPS course acquisition signals at the mobile station's GPS receiver relative to the mobile station's local clock. The time of arrival of a system pilot signal is also estimated.

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: V

Delays through the base station's transmitter and the mobile station's receiver are determined. Finally, the time of arrival values are calibrated and compensated for the base station's transmitter delay and the mobile station's receiver delay. The calibration and compensation process provides a more accurate position estimate for the mobile station.

D3 relates to a method and an apparatus for determining time for GPS receivers. A GPS receiver is contained in an integrated receiver which also includes a cell-based communication receiver, e.g. a mobile station. The mobile station receives a communication signal which contains a time indicator representing a time synchronized event.

However, all three documents, D1-D3 fail to disclose how to determine the likely location of a mobile user equipment relative to a station of the communication system. Neither do any of D1-D3 disclose that an estimate of a delay between transmission of a signal from the station and reception of said signal at the mobile user equipment could then be determined based on the determined likely location of the user equipment relative to the station of the communication system.

Consequently, the claimed invention as in claims 1-17 is novel, considered to involve an inventive step and has industrial applicability.